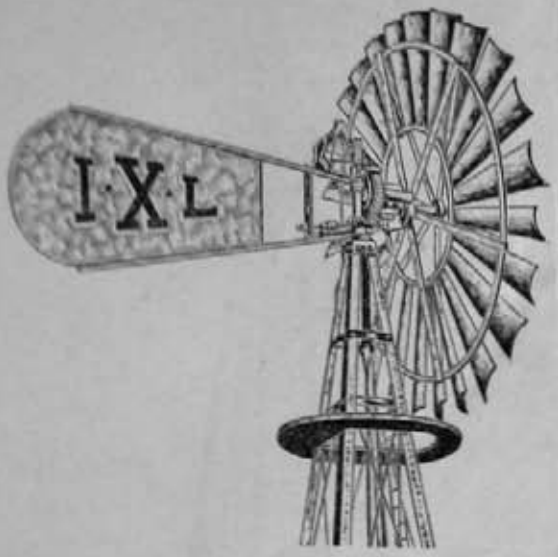
The "I X L" Steel Windmill



IS THE MOST COMPLETE WINDMILL ON EARTH.

Made for **Durability** and not to satisfy the craze for "something cheap."

The Wheel is made with **Double Arms** so that it is impossible to spring it out of shape.

The Rudder is **Double Braced** with Angle Steel.

The Main Casting is **made adjustable so as to take up any wear that may ever come on the cog wheels**. This feature alone makes it far superior to all other windmills.

Both Wheel and Rudder are made **entirely of steel**—no awkward castings to break or retard the motion of the Wheel.

It is made with three different lengths of stroke, making it especially adapted to either cylinder or tubular wells.

It will not flop out and into gear in an unsteady wind, being controlled by a constantly increasing tension of the governing spring.

It is **Galvanized after completion** giving a remarkably neat and durable finish.

SELF-GOVERNING.

There is a remarkable beauty about the *governing principle* which is characteristic of this Mill alone, it being constructed so that the *wheel* moves out of the wind in governing, and not the *rudder* as in most other mills. There is a proper amount of speed for the wheel, which it has in ordinary winds with the wheel directly facing the wind, but by the self-governing principle peculiar to this Mill, when the wind blows harder than the wheel ought to bear the tendency is to fold the wheel partially toward the rudder, and in this position it continues to work at its regular speed; then, as soon as the force of the wind abates, it resumes its normal position with the wheel squarely facing the wind. If the wind becomes very severe the wheel is folded around by the side of the rudder, thus presenting the edge of the wheel to the wind, and it remains still until the wind storm dies away when it returns to its original position and resumes its work. Thus the Mill governs itself perfectly.

PLAINVILLE, N. Y.

Philips & Bigelow Wind Mill Co., Kalamazoo, Mich.

Dear Sirs—Enclosed find draft for the three last Windmills shipped me. One of these Mills, as I old you in my former letter, goes into an entirely new neighborhood. The party to whom I sold it bought a Mill and tilting Tower; but it broke down and he sent for me, knowing that I was handling Windmills. After a long argument I sold him the "I X L" Windmill, warranting it to be as good as any Mill made. Yesterday when we had the Windmill completed quite a number of neighbors gathered to see the new mill—the one which I had warranted to be as good as the ——, or the ——, or the ——, which are used in that neighborhood.

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It was quite amusing to see their surprise when I showed them the points of superiority in our Mill, as up to that time each one had supposed that he had the best Mill on the market. Respectfully,

P. S. BRATT.

See further description on third page of cover.

to attach ... of bolts ...
In each box of bolts ... Mill and Tower together
structions for putting

...ized Steel Windmills	Wholesale Price.
... fitted with cap for Wood Tower, (back geared).	$15 75
... fitted with cap for Wood Tower, (back geared).	18 50
... fitted with cap for Wood Tower, (back geared).	20 50
... fitted with cap for Wood Tower, (back geared).	26 50

...nt would make them cost

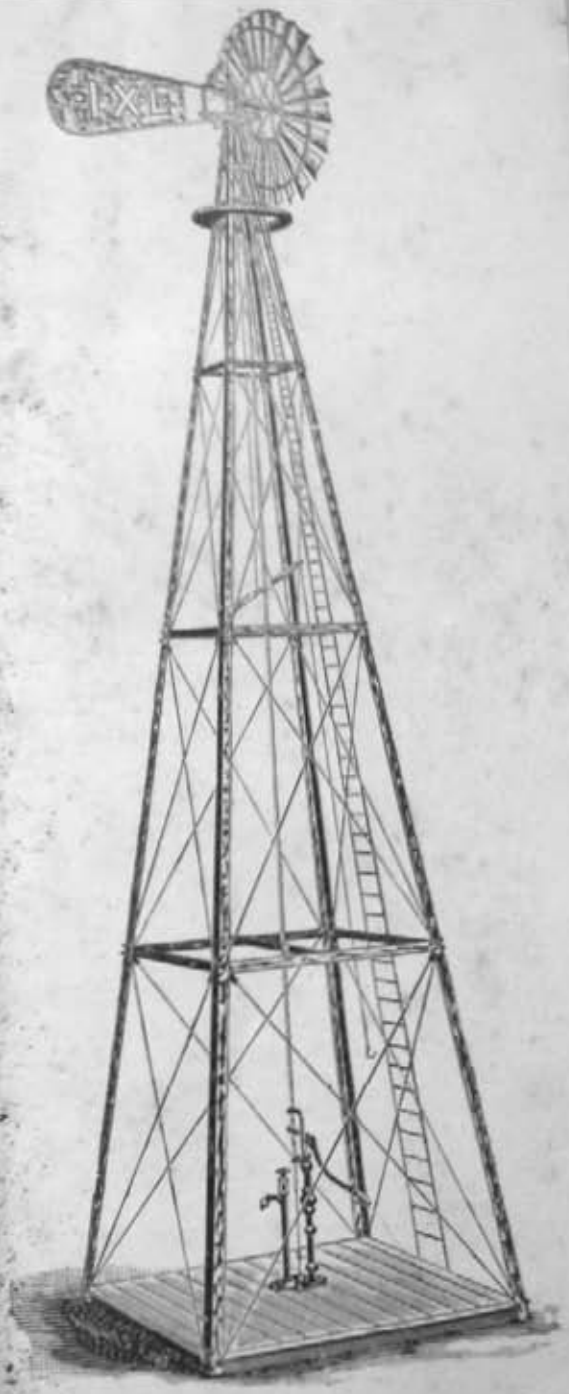
...ch you at a dis-

C. A. Thompson

Wholesale Price List.

OF

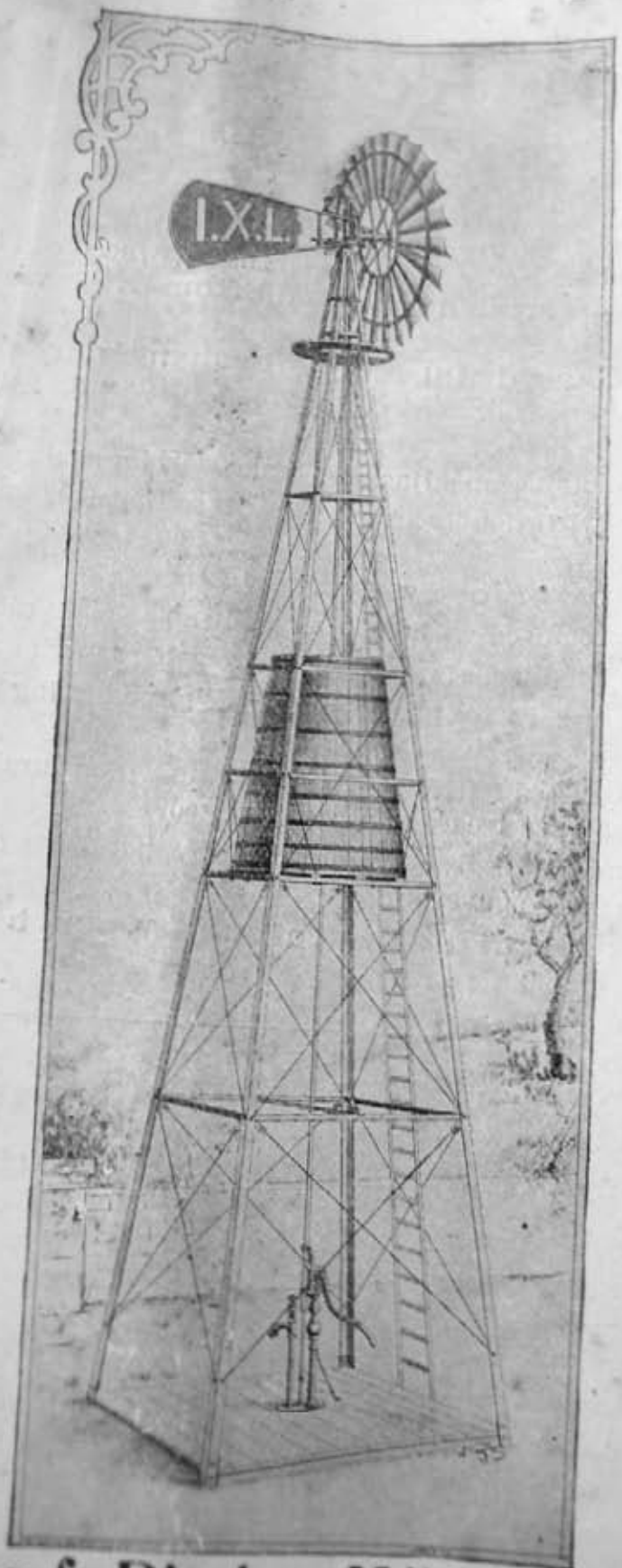
STEEL WINDMILLS,
STEEL TOWERS,
STEEL TANKS,
WOOD WHEEL WINDMILLS,
WOOD TOWERS,
WOOD TANKS,
FEED COOKERS,
PUMPS, PIPE, etc.



For full description of the goods in this price list, see our general Catalogue.

The PHELPS & BIGELOW WIND MILL CO.,

Kalamazoo, - - - Michigan.



The Phelps & Bigelow Wind Mill Company

Kalamazoo, Michigan.

Galvanized Steel

No. 0, 6 ft. Windmill, fitted with cap for Wood Tower, 20
No. 1, 8 ft. Windmill, fitted with cap for Wood Tower, (back 8
Windmill, fitted with cap for Wood Tower, (back geared). 42 25
Windmill, fitted with cap for Wood Tower, (back geared). 63 50
fitted with cap for Wood Tower, (back geared).
fitted with cap for Wood Tower, (back geared).

...ake DIRECT

...t to all orders

A Dozen Reasons Why

THE "I X L" IS THE BEST BACK GEARED STEEL WINDMILL ON EARTH.

BECAUSE—

It is the **only Mill** in which **the main casting is made in two parts, adjustable,** so that any wear that may ever come on the cog wheels can be taken up, and this **can be done without removing the Mill from the tower,** and by simply changing two bolts.

It is the **only Back Geared Mill** which can be **changed from a three revolution** to a **two and one-half** or **two revolution Mill without removing it from the tower.**

It is the **only Mill** which has an adjustable brake working against a rubber cushion.

The Wheel is made with double arms **trussed** so that it is impossible to spring it out of shape.

The Rudder is **double braced** with angle steel.

Either Shaft can be removed without taking down the main casting.

It has a bearing for the main shaft **back** of the gearing as well as in front.

It has **three different lengths of stroke,** thus adapting it for use with any kind of pump or well.

It is **constructed on scientific principles** in which durability, ease of erection and self-governing qualities are especially considered.

It will **not** flop out and into gear in an unsteady wind, being controlled by a constantly increasing tension of the governing spring.

It is **galvanized after all of the work of cutting, punching and riveting is completed.**

Direct Motion Steel Windmills.

COMBINE STRENGTH, SIMPLICITY and DURABILITY.

The Wheel is made with **double arms** and **thoroughly trussed** so that it is impossible to spring it out of shape.

The Rudder is **double braced** with angle steel.

The Mill is bolted solidly to the tower.

It has nothing to get out of order.

It has a superior brake.

It has an adjustable guide for top end of pitman.

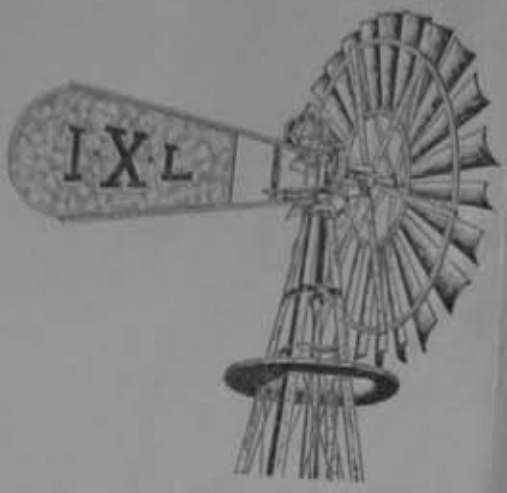
It runs quietly and steadily.

It has a large reservoir under main shaft with automatic conductor.

...s self-governing principle is perfect.

It is so simple in its construction that anyone can erect it.

The "IXL" Steel Windmill



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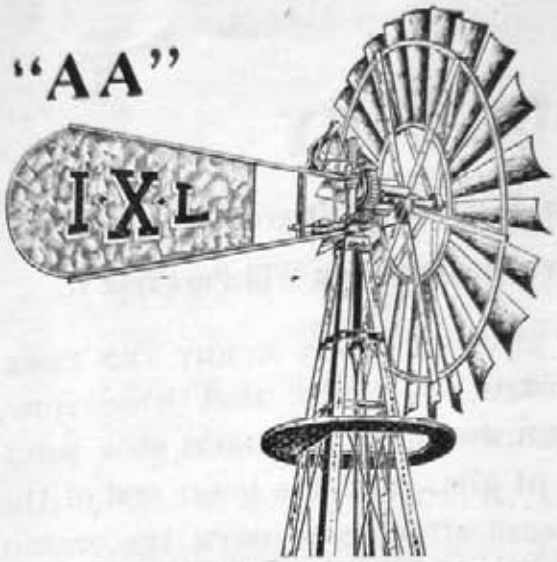
P. S. BRATT.

See further description on third page of cover.

take ... the cash.

Business Established 1873.



Wholesale Price List

OF

Steel Windmills — **Steel Towers**
Wood Wheel Windmills — **Wood Towers**
Feed Cookers — **Pumps, Pipes, etc.**

Price of Windmill includes all bolts for putting it together and bolting it to Tower, and also the actuating rod which goes down to attach to pump.

In each box of bolts will be found plain instructions for putting Mill and Tower together.

Weight Lbs.	Galvanized Steel Windmills	Wholesale Price.
285	No. 0, 6 ft. Windmill, fitted with cap for Wood Tower, (back geared).	$15 75
360	No. 1, 8 ft. Windmill, fitted with cap for Wood Tower, (back geared).	18 50
390	No. 2, 9 ft. Windmill, fitted with cap for Wood Tower, (back geared).	20 50
500	No. 3, 10 ft. Windmill, fitted with cap for Wood Tower, (back geared).	26 50
810	No. 4, 12 ft. Windmill, fitted with cap for Wood Tower, (back geared).	42 25
1095	No. 5, 14 ft. Windmill, fitted with cap for Wood Tower, (back geared).	63 50

Direct Motion Mills

The Windmills quoted above are **back geared.** We also make **DIRECT MOTION** Windmills which cost a little less, as stated below:

The 8 ft. **direct motion** is $1.00 less than the 8 ft. **back geared.**
The 9 ft. " " is 1.00 less than the 9 ft. " "
The 10 ft. " " is 2.00 less than the 10 ft. " "
The 12 ft. " " is 2.00 less than the 12 ft. " "
The 14 ft. " " is 3.00 less than the 14 ft. " "

If the **direct motion** Mill is wanted, it should be so stated in the order, otherwise the **back geared** Mill will be shipped.

It should be borne in mind that the **back geared** Mills have more power than the **direct motion** Mills of the same size.

The 12 ft. and 14 ft. back geared Mills named above are made very strong and heavy and have great power.

Galvanizing

The galvanizing of both Mill and Tower is done after all the cutting, punching and riveting is completed, thus covering all raw edges and thoroughly protecting from the weather.

Warranty

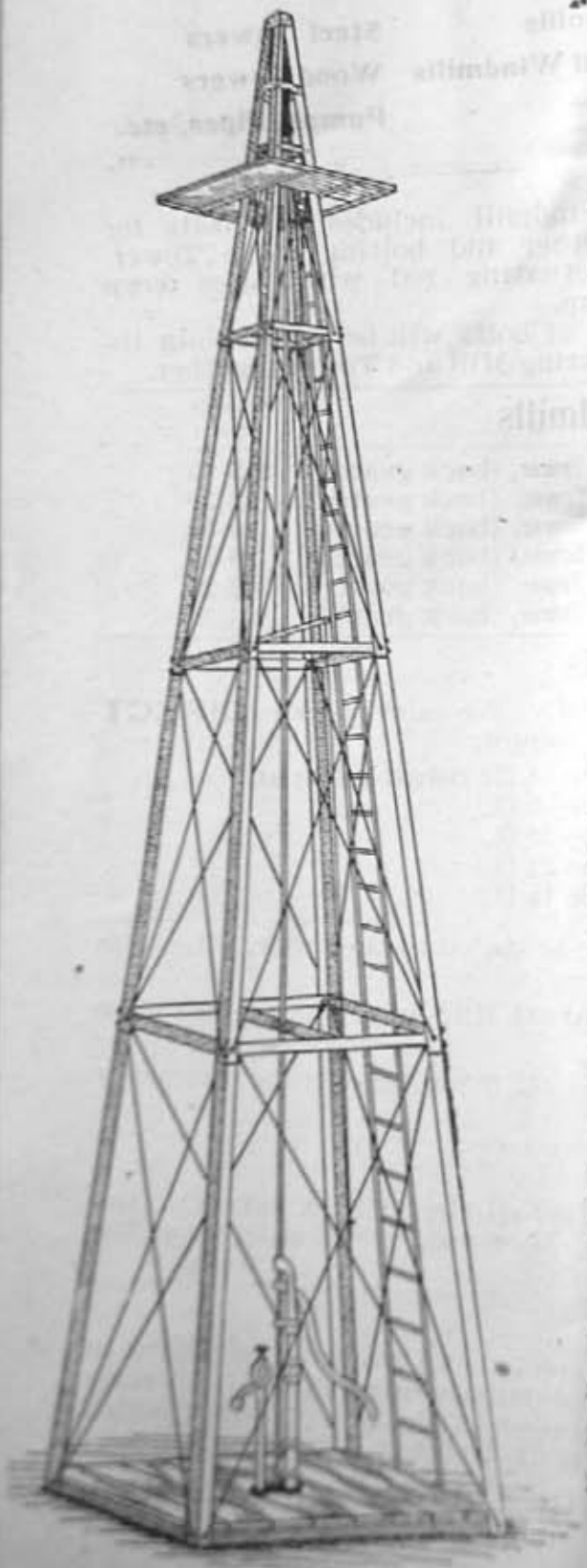
All our Mills and Towers are warranted (when erected and anchored according to our printed instructions) against winds which do not damage other property in same vicinity. This warranty extends for one year, and any piece of the Mill or Tower which proves defective within said year will be furnished without charge on cars at Kalamazoo.

The Phelps & Bigelow Wind Mill Co., Kalamazoo, Mich.

OUR "SAMSON" TOWER

COMBINES

Strength and Simplicity



In a Remarkable Degree.

Study its Construction and You Will Purchase It.

It has a set of girts and braces EVERY TEN FEET and a special construction, such, that when completed THE CORNER POSTS ARE DOUBLE at a point opposite each set of girts, and the lower end of the BOTTOM set of braces attaches to BOTH the anchor post and corner post, thus TYING THE TOWER TOGETHER COMPLETELY FROM ANCHOR POST TO UPPER PLATFORM. The braces are steel rods, and not wires, as some manufacturers use, and EACH BRACE ROD HAS AN INDEPENDENT THREAD AND NUT so it can be drawn to just the tension desired.

We call special attention to the ladder as an important part of the Tower. Ours is constructed entirely of angle steel, which makes it stiff and strong, and it is BOLTED SOLIDLY TO EACH SET OF GIRTS, making it SAFE AND EASY TO CLIMB and ADDING GREATLY TO THE STRENGTH of the Tower.

The anchor posts have steel plates riveted to bottom of same, all galvanized.

This Tower also has a steel girt at the ground line which adds both to the strength of tower and ease of erection.

We carry in stock Towers 20 ft., 30 ft., 40 ft., 50 ft., and 60 ft. in height which are interchangeable; and also 25 ft., 35 ft., and 45 ft. Towers which are interchangeable; and to any of the above heights 10-foot sections can be added at the bottom.

you may want to sell [illegible]

the list prices.

8 Foot Mills with "Samson" Steel Towers

These "Samson" Towers are shown and described on page 2.

Weight Lbs.	8-foot Back Geared Mills, Galvanized, with THREE POST "Samson" Steel Towers, Galvanized	Wholesale Price.
675	8 ft. Mill with 20 ft. Three Post Tower and Anchor Posts.....	$31 65
730	8 ft. Mill with 25 ft. Three Post Tower and Anchor Posts....	34 35
800	8 ft. Mill with 30 ft. Three Post Tower and Anchor Posts.....	37 00
865	8 ft. Mill with 35 ft. Three Post Tower and Anchor Posts.....	39 50
930	8 ft. Mill with 40 ft. Three Post Tower and Anchor Posts.....	42 00
1040	8 ft. Mill with 45 ft. Three Post Tower and Anchor Posts.....	46 50
1120	8 ft. Mill with 50 ft. Three Post Tower and Anchor Posts.....	50 65
1275	8 ft. Mill with 60 ft. Three Post Tower and Anchor Posts.....	60 00

If an 8-ft. **direct motion** Mill is used with above Towers the price will be $1.00 less.
If a 9-ft. **direct motion** Mill is used with above Towers the price will be $1.00 more.
If a 9-ft. **back geared** Mill is used with above Towers the price will be $2.00 more.
If a 6-ft. **back geared** Mill is used with above Towers the price will be $2.75 less.

Weight Lbs.	8-foot Back Geared Mills, Galvanized, with FOUR-POST "Samson" Steel Towers, Galvanized	Wholesale Price.
725	8 ft. Mill with 20 ft. Four Post Tower and Anchor Posts.....	$33 25
780	8 ft. Mill with 25 ft. Four Post Tower and Anchor Posts.....	36 00
860	8 ft. Mill with 30 ft. Four Post Tower and Anchor Posts.....	38 50
940	8 ft. Mill with 35 ft. Four Post Tower and Anchor Posts.....	41 65
1035	8 ft. Mill with 40 ft. Four Post Tower and Anchor Posts.....	44 50
1140	8 ft. Mill with 45 ft. Four Post Tower and Anchor Posts.....	50 00
1250	8 ft. Mill with 50 ft. Four Post Tower and Anchor Posts.....	55 00
1450	8 ft. Mill with 60 ft. Four Post Tower and Anchor Posts.....	65 00

If an 8-ft. **direct motion** Mill is used with above Towers the price will be $1.00 less.
If a 9-ft. **direct motion** Mill is used with above Towers the price will be $1.00 more.
If a 9-ft. **back geared** Mill is used with above Towers the price will be $2.00 more.
If a 6-ft. **back geared** Mill is used with above Towers the price will be $2.75 less.

Weight, Lbs.	10-foot Back Geared Mills Galvanized with THREE-POST "Samson" Steel Towers Galvanized.	Wholesale Price.
835	10 ft. Mill with 20 ft. Three Post Tower and Anchor Posts....	$41 75
895	10 ft. Mill with 25 ft. Three Post Tower and Anchor Posts....	44 75
970	10 ft. Mill with 30 ft. Three Post Tower and Anchor Posts....	47 50
1040	10 ft. Mill with 35 ft. Three Post Tower and Anchor Posts....	50 00
1110	10 ft. Mill with 40 ft. Three Post Tower and Anchor Posts....	52 75
1225	10 ft. Mill with 45 ft. Three Post Tower and Anchor Posts....	57 00
1310	10 ft. Mill with 50 ft. Three Post Tower and Anchor Posts....	61 25
1500	10 ft. Mill with 60 ft. Three Post Tower and Anchor Posts....	71 25

For price of 10 ft. **direct motion** Mills with steel towers see page 5.

Weight, Lbs.	10-foot Back Geared Mills Galvanized with FOUR-POST "Samson" Steel Towers Galvanized. These Samson Towers are shown and described on Page 2.	Wholesale Price.
900	10 ft. Mill with 20 ft. Four Post Tower and Anchor Posts....	$44 50
970	10 ft. Mill with 25 ft. Four Post Tower and Anchor Posts....	47 25
1060	10 ft. Mill with 30 ft. Four Post Tower and Anchor Posts....	50 00
1150	10 ft. Mill with 35 ft. Four Post Tower and Anchor Posts....	53 75
1250	10 ft. Mill with 40 ft. Four Post Tower and Anchor Posts....	57 50
1365	10 ft. Mill with 45 ft. Four Post Tower and Anchor Posts....	61 75
1490	10 ft. Mill with 50 ft. Four Post Tower and Anchor Posts....	66 00
1700	10 ft. Mill with 60 ft. Four Post Tower and Anchor Posts....	74 00

Weight, Lbs.	12-foot Back Geared Mills Galvanized with FOUR-POST "Samson" Steel Towers Galvanized.	Wholesale Price.
1330	12 ft. Mill with 20 ft. Four Post Tower and Anchor Posts.....	$63 25
1425	12 ft. Mill with 25 ft. Four Post Tower and Anchor Posts.....	66 40
1525	12 ft. Mill with 30 ft. Four Post Tower and Anchor Posts.....	69 65
1630	12 ft. Mill with 35 ft. Four Post Tower and Anchor Posts.....	73 85
1735	12 ft. Mill with 40 ft. Four Post Tower and Anchor Posts.....	78 00
1850	12 ft. Mill with 45 ft. Four Post Tower and Anchor Posts.....	82 25
1970	12 ft. Mill with 50 ft. Four Post Tower and Anchor Posts.....	87 00
2230	12 ft. Mill with 60 ft. Four Post Tower and Anchor Posts.....	97 50

Weight, Lbs.	10-foot Direct Motion Mills Galvanized with THREE-POST "Samson" Steel Towers Galvanized.	Wholesale Price.
810	10 ft. Mill with 20 ft. Three Post Tower and Anchor Posts ...	$39 50
870	10 ft. Mill with 25 ft. Three Post Tower and Anchor Posts ...	42 75
945	10 ft. Mill with 30 ft. Three Post Tower and Anchor Posts ...	45 35
1015	10 ft. Mill with 35 ft. Three Post Tower and Anchor Posts ...	48 00
1085	10 ft. Mill with 40 ft. Three Post Tower and Anchor Posts ...	50 60
1200	10 ft. Mill with 45 ft. Three Post Tower and Anchor Posts ...	54 80
1285	10 ft. Mill with 50 ft. Three Post Tower and Anchor Posts ...	59 00
1475	10 ft. Mill with 60 ft. Three Post Tower and Anchor Posts ...	69 00

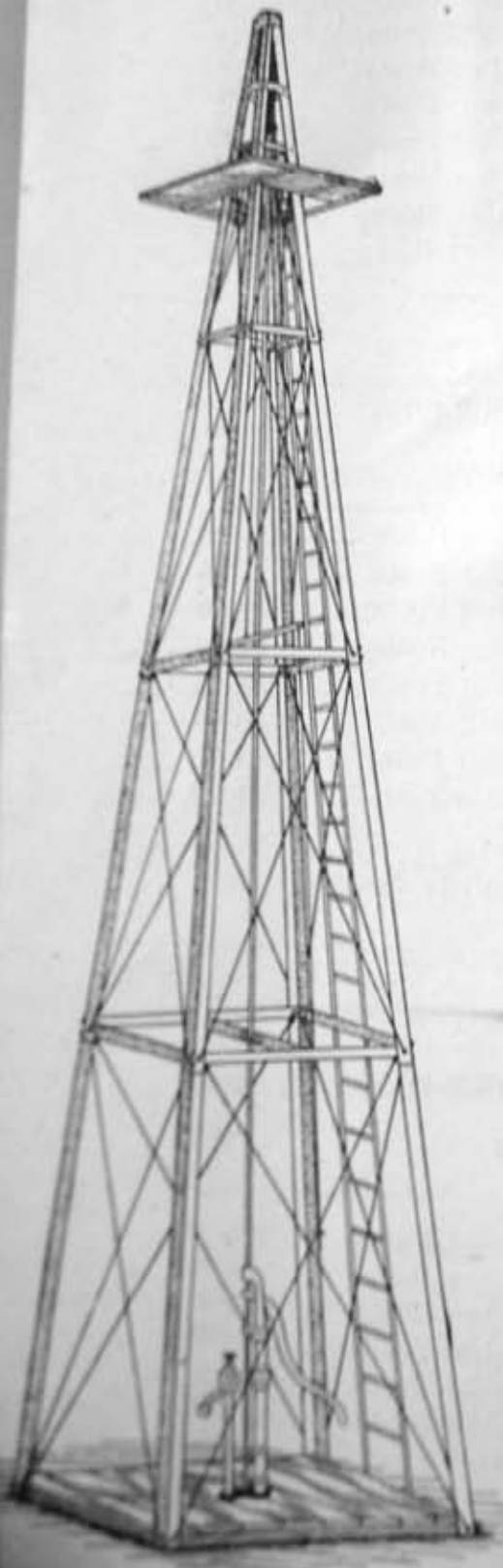
Weight, Lbs.	10-foot Direct Motion Mills Galvanized with FOUR-POST "Samson" Steel Towers Galvanized.	Wholesale Price.
875	10 ft. Mill with 20 ft. Four Post Tower and Anchor Posts.....	$42 15
945	10 ft. Mill with 25 ft. Four Post Tower and Anchor Posts.....	44 95
1035	10 ft. Mill with 30 ft. Four Post Tower and Anchor Posts.....	48 00
1125	10 ft. Mill with 35 ft. Four Post Tower and Anchor Posts.....	51 70
1225	10 ft. Mill with 40 ft. Four Post Tower and Anchor Posts.....	55 35
1340	10 ft. Mill with 45 ft. Four Post Tower and Anchor Posts.....	59 60
1465	10 ft. Mill with 50 ft. Four Post Tower and Anchor Posts.....	63 75
1675	10 ft. Mill with 60 ft. Four Post Tower and Anchor Posts.....	71 70
	☞10 ft. **Wood Wheel** Mill with Galvanized Steel Towers and Anchor Posts, same prices as above when mill is finished with ordinary style of wheel.	

Weight, Lbs.	14-foot Back Geared Mills Galvanized with FOUR-POST "Samson" Steel Towers Galvanized	Wholesale Price.
1665	14 ft. Mill with 20 ft. Four Post Tower and Anchor Posts.....	$86 55
1770	14 ft. Mill with 25 ft. Four Post Tower and Anchor Posts.....	89 70
1875	14 ft. Mill with 30 ft. Four Post Tower and Anchor Posts.....	93 65
1990	14 ft. Mill with 35 ft. Four Post Tower and Anchor Posts.....	98 15
2100	14 ft. Mill with 40 ft. Four Post Tower and Anchor Posts.....	102 85
2220	14 ft. Mill with 45 ft. Four Post Tower and Anchor Posts.....	107 75
2350	14 ft. Mill with 50 ft. Four Post Tower and Anchor Posts.....	113 00
2650	14 ft. Mill with 60 ft. Four Post Tower and Anchor Posts.....	124 00

FOUR POST "SAMSON" STEEL TOWERS.

These Towers have a set of girts and braces **every ten feet.**

See full description on page 2.



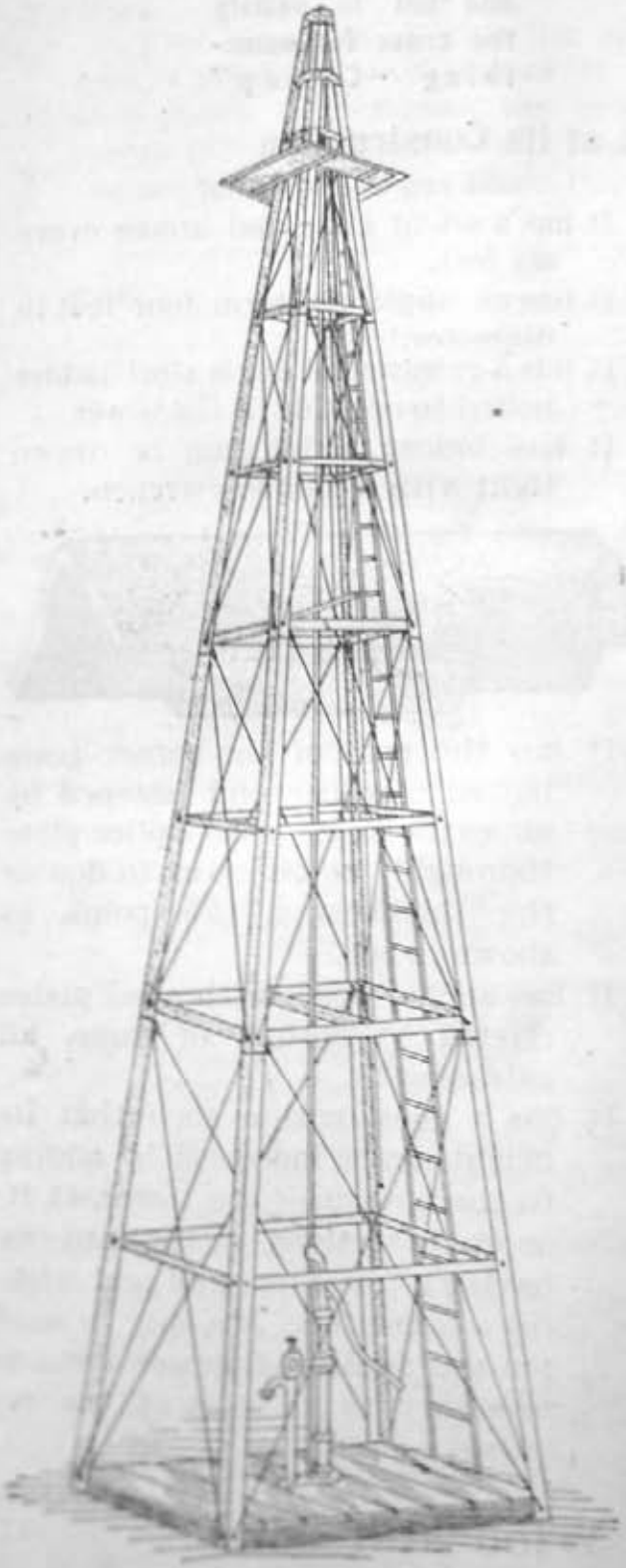
Weight Lbs	The Steel Towers are punched and fitted, ready to put together, and price below includes the Upper Platform, and all bolts necessary to put the Tower together.	GALVANIZED. Wholesale Price.
	Steel Towers to Carry 8 ft. and 9 ft. Wind Mills.	
300	Tower 20 feet high.....	$12 10
375	Tower 25 feet high.....	14 75
455	Tower 30 feet high.....	17 95
540	Tower 35 feet high.....	21 10
625	Tower 40 feet high.....	24 25
720	Tower 45 feet high.....	28 50
840	Tower 50 feet high.....	33 25
1060	Tower 60 feet high.....	43 75
50	Anchor Posts.....	2 64
	Steel Towers to Carry 10 ft. Wind Mills.	
340	Tower 20 feet high.....	$14 75
425	Tower 25 feet high.....	17 70
515	Tower 30 feet high.....	20 60
610	Tower 35 feet high.....	24 25
705	Tower 40 feet high.....	27 95
810	Tower 45 feet high.....	32 20
920	Tower 50 feet high.....	36 40
1160	Tower 60 feet high.....	45 35
60	Anchor Posts.....	3 16
	Steel Towers to Carry 12 ft. Wind Mills.	
420	Tower 20 feet high.....	$16 85
515	Tower 25 feet high.....	20 00
615	Tower 30 feet high.....	23 20
720	Tower 35 feet high.....	27 45
825	Tower 40 feet high.....	31 65
940	Tower 45 feet high.....	35 90
1060	Tower 50 feet high.....	40 60
1320	Tower 60 feet high.....	51 15
100	Anchor Posts.....	4 22

Towers to Carry 14 ft. Mills.

To get price of Steel Towers to carry 14 ft. Mills add ten per cent. to the price of steel towers to carry the 12 ft. Mills, as given above.

Hercules Steel Towers

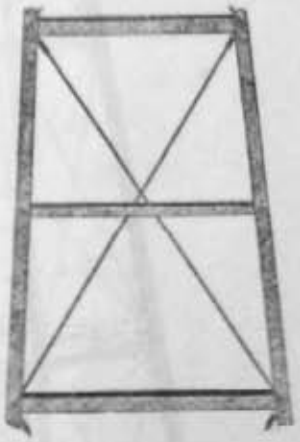
Having a Set of Girts Every Five Feet.



IN purchasing Steel Towers many persons are willing to pay a little more in price to have them made *extra strong*. To meet this demand we build the **Hercules Tower**, which has a set of girts *every five feet*. The construction is the same as the "Samson" Tower, described on page 2 *with the addition of an extra set of girts in the middle of each ten-foot section*; this set of girts being punched so that the brace rods run *through* them.

The special construction of the "Samson" Tower with the addition of these middle-section girts, and the brace rods running through same, makes the Tower *as nearly indestructible as it is possible to make it.*

We call this the **Hercules Tower** to distinguish it from our regular "Samson" Tower, which has a set of girts every ten feet.

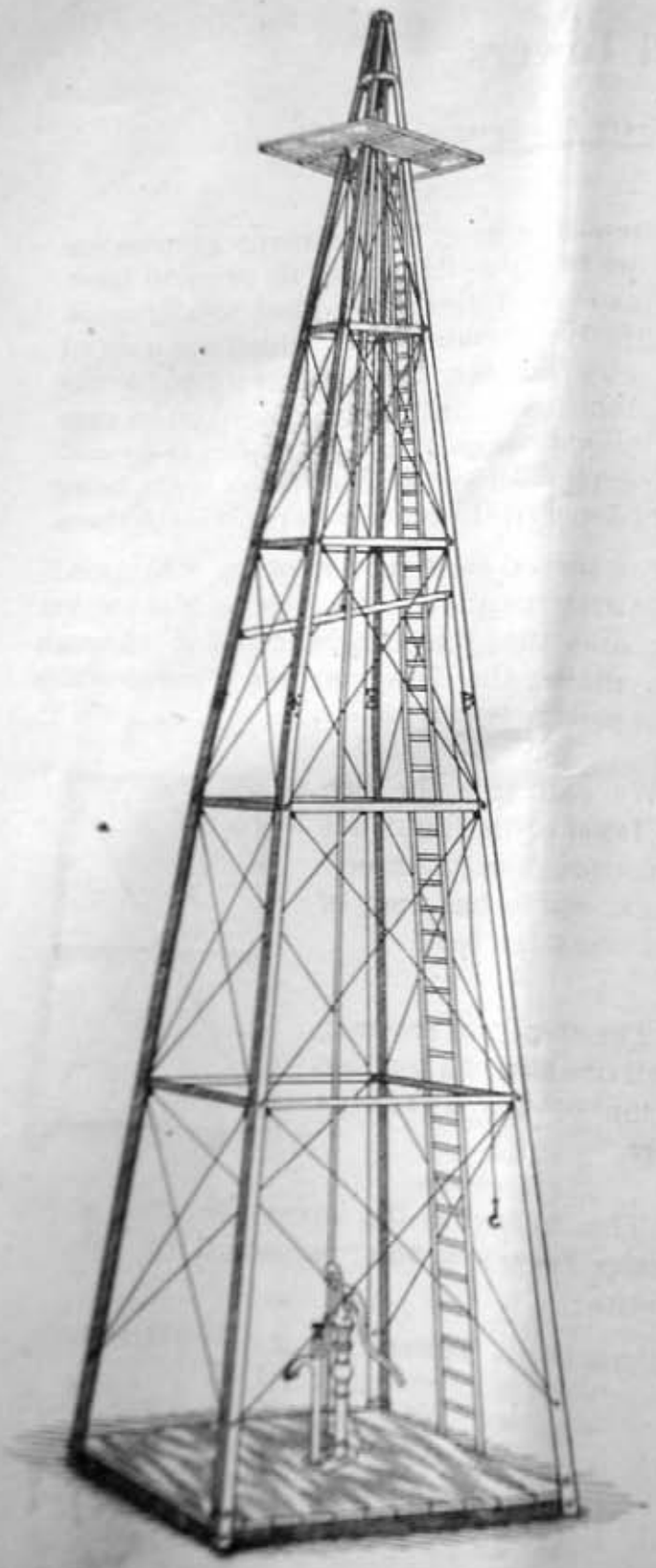


The small cut shows in detail one side of a ten-foot section of the **Hercules Tower.**

The following list gives the cost of the **Hercules Tower** over the "Samson," in different heights:

On a 20 ft.	Tower.....	$	75	additional
" 25 "	"	1	15	"
" 30 "	"	1	50	"
" 35 "	"	2	00	"
" 40 "	"	2	50	"
" 45 "	"	3	50	"
" 50 "	"	4	25	"
" 60 "	"	6	50	"

When the **Hercules Tower** is used, the above is the net cost over the prices quoted for the Mills with the "Samson" Towers on pages 3, 4, 5 and 6 of the price list.



The "I X L" STEEL TOWER

Made for Durability and not to satisfy the craze for something "Cheap"

Look at its Construction

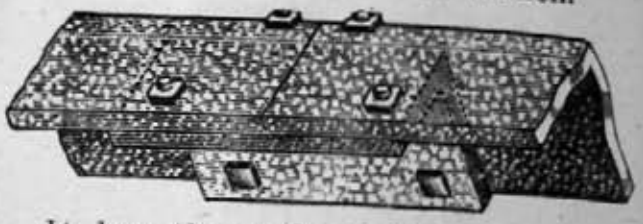
and you will see that

It has a set of girts and braces every six feet.

It has an upper platform four feet in diameter.

It has a substantial angle steel ladder bolted to one side of the tower.

It has braces which can be drawn tight with a common wrench.



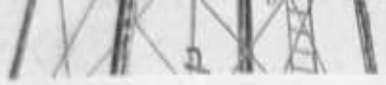
It has the ends of the corner posts butted together and fastened by an extra angle steel splice-plate thoroughly bolted so as to double the thickness at this point, as shown in cut.

It has anchor posts with steel plates riveted to bottom of same, all galvanized.

It has a construction such that its height can be increased by adding to the bottom of the tower, 12 ft. or 18 ft. sections, so that any one having a tower on hand and wishing a higher one, has only to send for the additional lower sections necessary to make it of the required height.

The Phelps & Bigelow Wind Mill Co.,

Kalamazoo, Mich.



8-foot Back Geared Mills Galvanized with FOUR-POST "I X L" Steel Towers Galvanized.

GALVANIZED.

The **Towers** in this list have a set of Girts and Braces **every six feet.** All splices of corner posts have extra angle steel plates, and material can be furnished at any time to put 12 feet or 18 feet on the bottom, should the purchaser wish to make the tower higher.—See Cut on Page 8.

Weight. Lbs.		Wholesale Price.
780	One 8-ft. Steel Windmill (back geared) One 24-ft. Four-Post Steel Tower One Set Anchor Posts One Set Steel Plates on bottom of Anchors	$35 85
880	One 8-ft. Steel Windmill (back geared) One 30 ft. Four-Post Steel Tower One Set Anchor Posts One Set Steel Plates on bottom of Anchors	39 60
1015	One 8-ft. Steel Windmill (back geared) One 36-ft. Four-Post Steel Tower One Set Anchor Posts One Set Steel Plates on bottom of Anchors	44 85
1175	One 8-ft. Steel Windmill (back geared) One 42-ft. Four-Post Steel Tower One Set Anchor Posts One Set Steel Plates on bottom of Anchors	50 65
1320	One 8-ft. Steel Windmill (back geared) One 48-ft. Four-Post Steel Tower One Set Anchor Posts One Set Steel Plates on bottom of Anchors	58 00
1465	One 8-ft. Steel Windmill (back geared) One 54-ft. Four-Post Steel Tower One Set Anchor Posts One Set Steel Plates on bottom of Anchors	65 45
1655	One 8-ft. Steel Windmill (back geared) One 60-ft. Four-Post Steel Tower One Set Anchor Posts One Set Steel Plates on bottom of Anchors	72 25

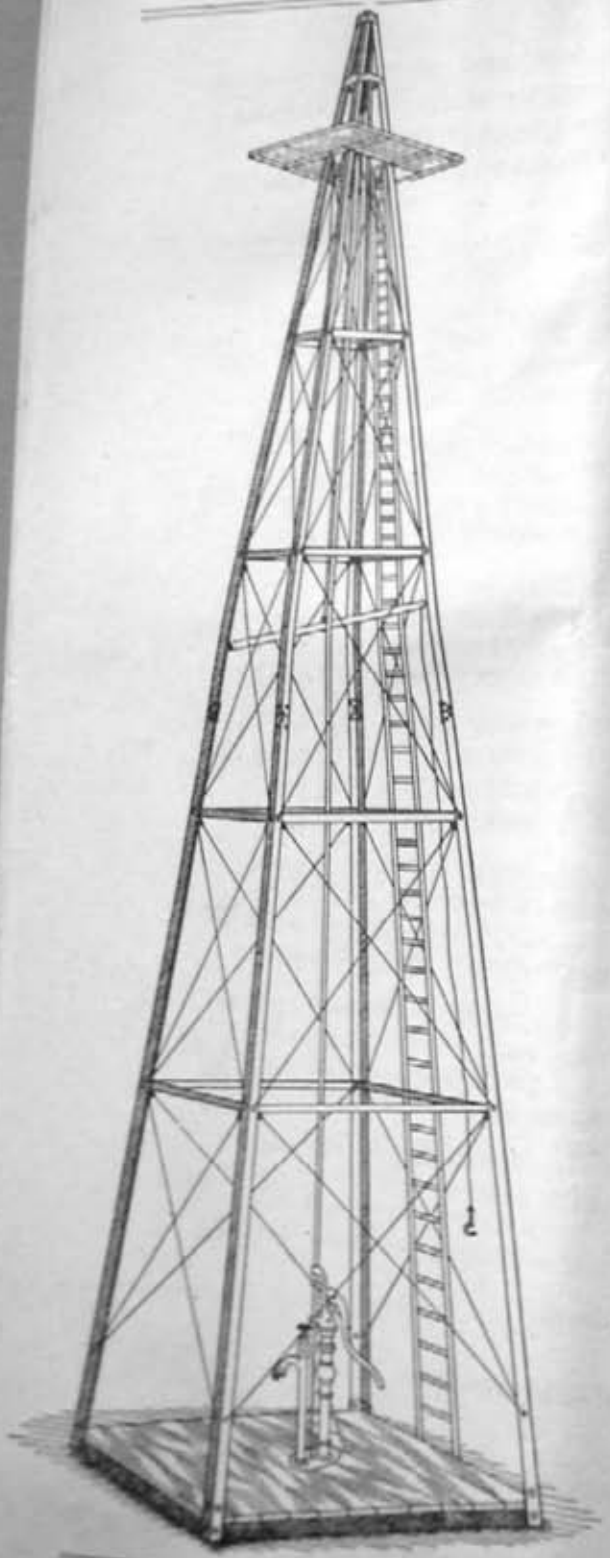
If an 8-ft. **direct motion** Mill is used with the above Towers the price will be $1.00 less.

If a 9-ft. **direct motion** Mill is used with the above Towers the price will be $1.00 more.

If a 9-ft. **back geared** Mill is used with the above Towers the price will be $2.00 more.

FOUR POSTS "I X L" STEEL TOWERS

These Towers have a set of girts and braces **every six feet.**



For full description see page 8.

The Steel Towers are punched and fitted, ready to put together, and price below includes the upper platform, and all bolts necessary to put the Tower together.

STEEL TOWERS TO CARRY 8 FT. AND 9 FT. WINDMILLS.

Weight Lbs.		Galvanized. Wholesale Price.
380	Tower 24 ft. high	$14 85
485	Tower 30 ft. high	18 95
620	Tower 36 ft. high	24 25
765	Tower 42 ft. high	29 95
930	Tower 48 ft. high	36 50
1095	Tower 54 ft. high	42 85
1266	Tower 60 ft. high	49 50
50	Anchor Posts....	2 64

STEEL TOWERS TO CARRY 10 FT. WINDMILLS

Weight Lbs.		Galvanized Wholesale Price.
428	Tower 24 ft. high	$16 75
545	Tower 30 ft. high	21 45
690	Tower 36 ft. high	27 20
850	Tower 42 ft. high	33 35
1015	Tower 48 ft. high	39 65
1180	Tower 54 ft. high	46 25
1370	Tower 60 ft. high	53 65
60	Anchor Posts....	3 16

STEEL TOWERS TO CARRY 12 FT. WINDMILLS

Weight Lbs.		Galvanized. Wholesale Price.
470	Tower 24 ft. high	$18 35
599	Tower 30 ft. high	23 50
759	Tower 36 ft. high	30 00
935	Tower 42 ft. high	36 75
1116	Tower 48 ft. high	43 85
1298	Tower 54 ft. high	51 00
1507	Tower 60 ft. high	58 50
100	Anchor Posts....	4 22

The "Samson" Tank Heater

THE PECULIAR CONSTRUCTION of this Heater makes it superior to any other on the market.

The large air flue at side and high smokestack ensures a good draught. The section that holds the fire can be lifted out, ashes dumped and fire started in the house or any other place.

No standing around in cold or storms waiting for fire to get started.

An air space around the fire prevents water from condensing, so common in others, and holds fire longer than it would otherwise. This DOUBLE CONSTRUCTION also makes it A GREAT FUEL SAVER, and it will heat the water in a large tank in a surprisingly short time. It has a perfect spark arrester, thus ensuring safety, and a damper in the pipe to control the fire.

This Heater is strongly built, has no soldered seams which come in contact with the fire; is simple, efficient, easy to set in tank, and altogether the best Heater on the market; made in two sizes, 24 and 30 inches high. Adapted to either steel or wood tank without cutting hole in tank or making any alteration. Attached to wood tank by rods shown in cut. Attached to steel tank by wire.

	Wholesale Price.
No. 1—24 inches high, weight 50 pounds	$2 75
No. 2—30 inches high, weight 60 pounds	3 30

The Phelps & Bigelow Wind Mill Co.,

Kalamazoo, Michigan.

Steel Towers FOR HOLDING Elevated Tanks.

When erecting a Windmill, why not use one of our Steel Towers **constructed for holding an elevated tank therein,** as the additional cost *is so small compared with the benefits* to be derived therefrom.

Page 16 shows our "Samson" Tower with a 500 gallon tank and page 18 shows our "I X L" Tower with a 750 gallon tank elevated therein. These outfits are especially adapted to suburban and farm residences, and the extra benefit to be obtained by the use of elevated tanks cannot be over-estimated.

A glance at the cut on page 16 or 18 and a few minutes' reflection will bring to your mind many of the advantages and uses of a job of this kind, such as watering gardens, sprinkling lawns, washing buggies and windows, and in many cases an excellent fire protection to suburban and country residences. The benefit received in a single summer from the one item of having water for irrigating a garden will often pay the additional expense of this style of job, to say nothing of the comfort to be derived from sprinkling lawns and the other uses to which it may be applied. We have received several letters from parties saying that if it had not been for their Windmill their buildings would have been burned.

These Towers are all made stronger and heavier than the ordinary Tower and the *price of the Tower includes the steel joists and truss work for supporting the Tank in the Tower.*

These Tanks are constructed for putting Tank *only at height named in each one respectively*, and only for holding the *size of Tank named or some smaller size.*

Points of Superiority.

Other manufacturers make Towers for carrying elevated tanks, but so far as we know, **we make the only tower which has a galvanized steel truss work** for carrying the Tank in the Tower, so we call attention to some of the **points of superiority** which our Tower possesses over others.

Ours has a **galvanized steel truss work** to carry Tank in Tower, while other manufacturers use **wood joists** under Tank or rest it on regular girts of Tower.

In **ours** the Tank *can be put in after Mill and Tower are erected;* in **others** Tank must be put in and raised with the Windmill Tower.

Ours is so constructed that the **Tank can be removed** from Tower at any time without disturbing the Windmill Tower proper; in **others** both **Windmill and Tower must be taken down** before the Tank can be removed from the Tower.

Phelps & Bigelow Wind Mill Co., Kalamazoo, Mich.

TRENTON, N. J., September 1, 1897.

Gentlemen—About a year ago Mr. J. A. H. Delp erected for the Trenton City Hospital one of your "I X L" Back Geared Steel Windmills on a Steel Tower 70 ft. high, with Tank elevated in the Tower 40 ft., and the same has given us excellent satisfaction. The elevation of the tank gives us in addition to the distribution of water through the building, sufficient force for emergencies in case of fire. The mechanism and neatness and completeness of the whole apparatus is all that could be desired.

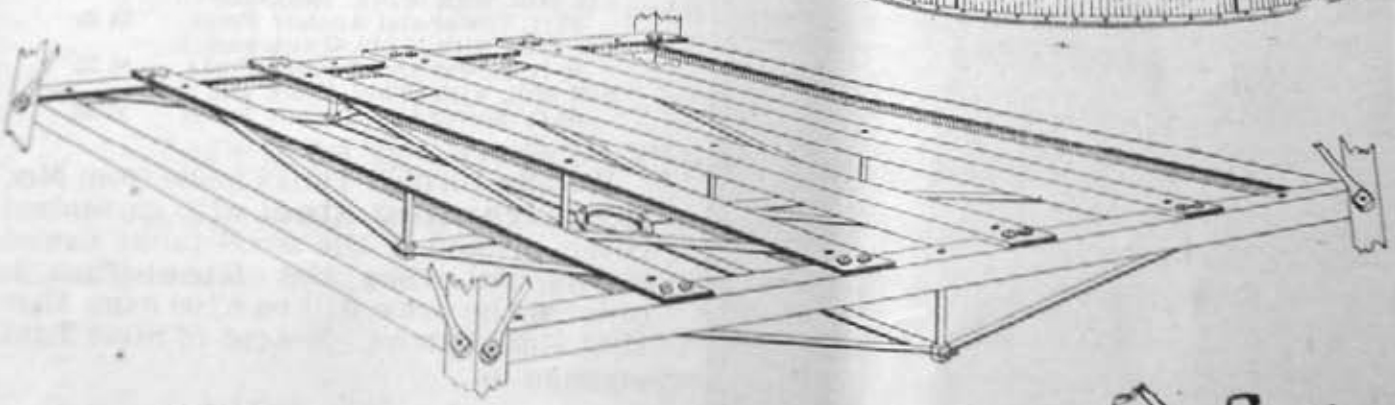
Very respectfully,

E. B. WITTE, Supt.

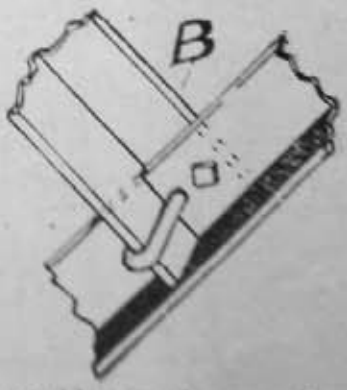
This cut shows a *Galvanized Steel Tank* to be elevated in the Towers shown on pages 16 and 18. We make these in two sizes, as follows: 4 ft. diameter, 8 ft. high, capacity about 500 gallons, to be used in the "Samson" Tower shown on page 16; and 5 ft. diameter, 8 ft. high, capacity about 750 gallons, to be used in the "I. X. L." Tower shown on page 18.

These Tanks are shipped set up, all complete, with cover and standpipe as shown in this cut, and make a very complete outfit.

The following cut shows the steel truss work for holding elevated tank in the Tower shown on page 18. Its strength and simplicity will be readily seen.



NOTICE THE TRUSS WORK UNDERNEATH THE STEEL CROSS BARS.



The small cut marked "B" shows the solid manner in which the ends of the cross-pieces are bolted to the girts of the platform.

We usually ship the platform all put together as shown in the above cut, and the outer set of girts attached to the platform constitute the regular set of girts in the Tower. We call attention to the **substantial manner in which this platform is trussed**, and being made entirely of galvanized steel there is nothing about it to decay or become water-soaked.

This platform is so simple in construction, and shown so plainly by the cut that no further description is needed. We believe it will commend itself to every reader.

GEARED STEEL MILLS FOR POWER

DID YOU EVER THINK

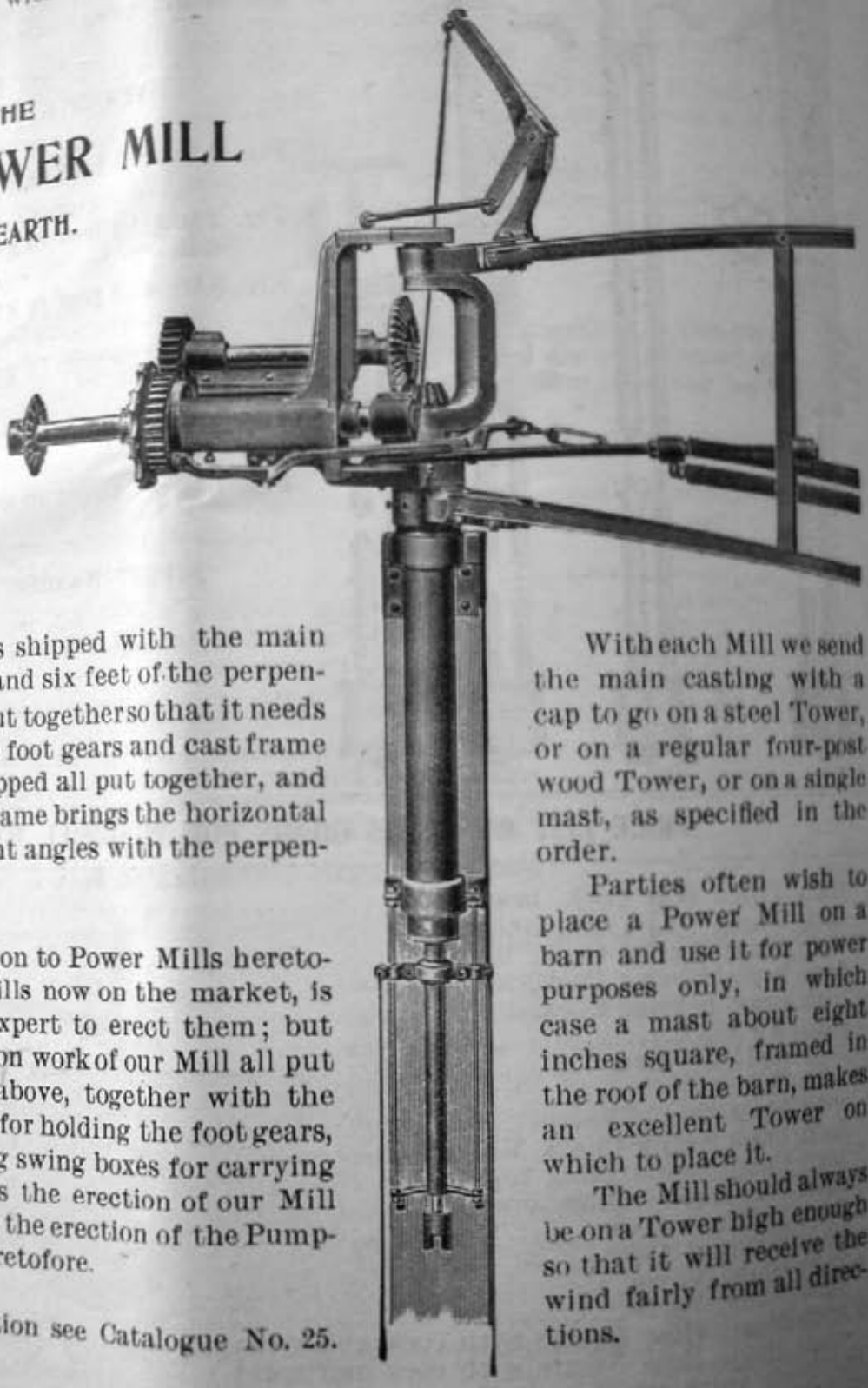
That wind is the **only** mechanical power absolutely free to all?

That a **Windmill** is the **only** machine a farmer has that will work without overseer or attendant, and even while he sleeps?

THE

BEST POWER MILL

ON EARTH.



SPECIAL FEATURES:

SIMPLICITY,

DURABILITY,

POWER.

The iron work is shipped with the main casting, upper gears and six feet of the perpendicular shafting all put together so that it needs no adjustment. The foot gears and cast frame holding same are shipped all put together, and the use of this cast frame brings the horizontal shafting at exact right angles with the perpendicular shafting.

One great objection to Power Mills heretofore, and to many Mills now on the market, is that it required an expert to erect them; but the shipping of the iron work of our Mill all put together, as stated above, together with the use of the cast frame for holding the foot gears, and the self-adjusting swing boxes for carrying the line shaft, makes the erection of our Mill as simple a matter as the erection of the Pumping Mill has been heretofore.

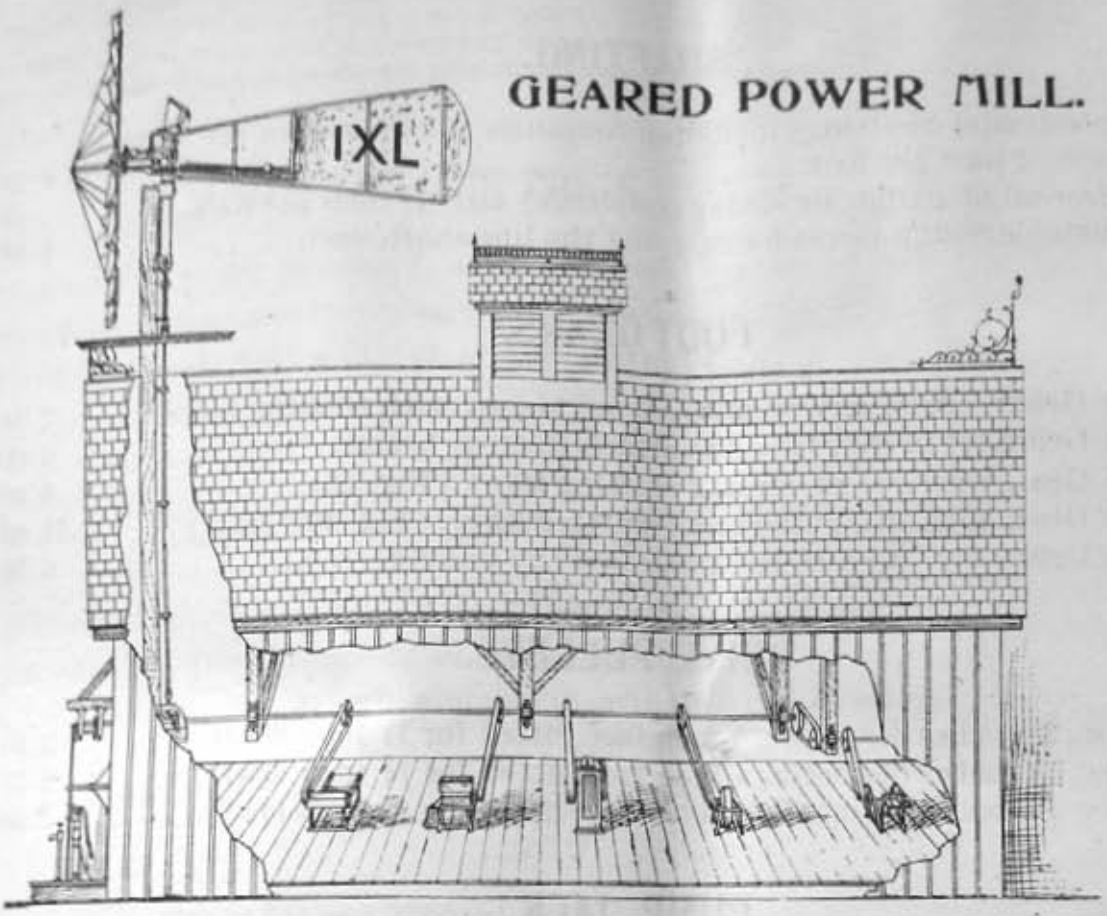
For full description see Catalogue No. 25.

With each Mill we send the main casting with a cap to go on a steel Tower, or on a regular four-post wood Tower, or on a single mast, as specified in the order.

Parties often wish to place a Power Mill on a barn and use it for power purposes only, in which case a mast about eight inches square, framed in the roof of the barn, makes an excellent Tower on which to place it.

The Mill should always be on a Tower high enough so that it will receive the wind fairly from all directions.

GEARED POWER MILL.



GALVANIZED	Wholesale Price.
12-ft. Steel Mill, including upper gears and 6 ft. of perpendicular shafting.	$50 00
13-ft. Steel Mill, including upper gears and 6 ft. of perpendicular shafting.	57 50
14-ft. Steel Mill, including upper gears and 6 ft. of perpendicular shafting.	70 00

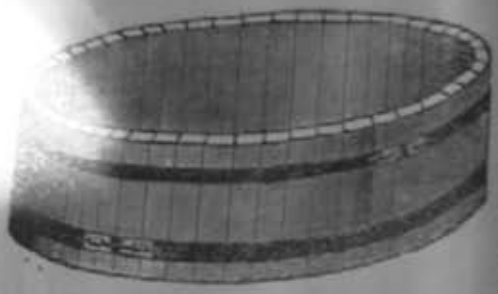
These Power Mills are furnished with a cap for single mast, or for a four-post wood tower, or for a steel tower as specified in the order.

4-POST STEEL TOWERS, GALVANIZED, TO CARRY 12-ft. AND 13-ft. MILLS.

The Steel Towers are punched and fitted ready to put together, and the price below includes the upper platform, and all bolts necessary to put the tower together.

Weight		
625 lbs.	Tower 20 feet high	18 00
900 lbs.	Tower 30 feet high	25 50
780 lbs.	Tower 40 feet high	33 00
1,000 lbs.	Tower 50 feet high	42 50
1,350 lbs.	Tower 60 feet high	57 25
125 lbs.	Anchor Posts, with steel plates riveted	5 25

☞ *For price of Steel Towers to carry the 14-foot Mill add 10% to the prices as given above.*



ROUND STOCK TANKS.

The Round Stock Tank is especially desirable as it is made shallow so that cattle can drink from it readily. The following sizes give a good variety from which to choose.

We call attention to the fact that our 2½ ft. stave Tanks have **three hoops** while most manufacturers use but two.

These Tanks are usually shipped in the knock-down, with hoops all made, and the wood parts all fitted except sawing the last stave to its proper width. Tanks shipped in the knock-down take a lower rate of freight than if set up.

	Capacity, Barrels.	2-inch Cypress. Wholesale Price.	1¼-inch Cypress or 2-inch Pine. Wholesale Price.
5 ft. bottom, 2 ft. stave, 2 hoops	7	$ 8 00	$ 6 70
5 ft. bottom, 2½ ft. stave, 3 hoops	9	9 35	7 80
5 ft. bottom, 3 ft. stave, 3 hoops	12	10 65	8 90
5½ ft. bottom, 2 ft. stave, 2 hoops	9	8 90	7 40
5½ ft. bottom, 2½ ft. stave, 3 hoops	12	11 15	8 90
5½ ft. bottom, 3 ft. stave, 3 hoops	15	12 60	10 55
6 ft. bottom, 2 ft. stave, 2 hoops	10	10 45	8 55
6 ft. bottom, 2½ ft. stave, 3 hoops	13	12 30	9 95
6 ft. bottom, 3 ft. stave, 3 hoops	17	13 70	11 65
7 ft. bottom, 2 ft. stave, 2 hoops	14	13 40	10 55
7 ft. bottom, 2½ ft. stave, 3 hoops	18	15 45	12 55
7 ft. bottom, 3 ft. stave, 3 hoops	25	17 50	14 85
8 ft. bottom, 2 ft. stave, 2 hoops	19	16 20	13 40
8 ft. bottom, 2½ ft. stave, 3 hoops	24	18 50	15 60
8 ft. bottom, 3 ft. stave, 3 hoops	30	21 15	17 80
10 ft. bottom, 2 ft. stave, 2 hoops	30	23 40	19 35
10 ft. bottom, 2½ ft. stave, 3 hoops	38	26 55	22 30
10 ft. bottom, 3 ft. stave, 3 hoops	45	29 50	25 00

HALF ROUND TANKS.

We make Half Round Tanks in three sizes. These Tanks are made from two-inch pine lumber, planed on both sides, and bound with 3x4 gripes and half-inch iron rods.

	2-inch Pine. Wholesale Price.
8 feet long, 4 feet wide, 20 inches deep	$ 8 45
12 feet long, 4 feet wide, 20 inches deep	10 55
16 feet long, 4 feet wide, 20 inches deep	12 50

VALVE OR AUTOMATIC TANKS.

Made of two-inch pine, the valve and float being covered to prevent animals from getting at them

feet long, 2 feet wide, 12 inches deep	6 00

For price of Valve and Float see page 38

ROUND RESERVOIR TANKS.

As each year goes by people realize more and more that it pays to have plenty of storage capacity for water. The following list gives an excellent variety, holding from fifteen to one hundred barrels. They are made from seasoned lumber, planed on both sides, and we would call especial attention to the number of hoops on each Tank, which is more than most manufacturers use. On large Tanks to be set up at destination, we make the hoops with draw lugs without extra charge.

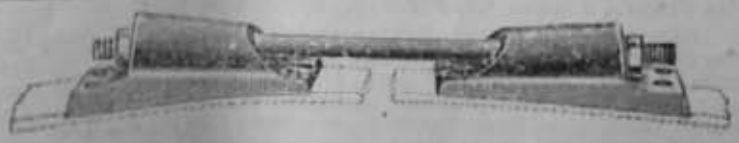
	Capacity, Barrels.	2-inch Cypress Wholesale Price.	1½-inch Cypress or 2-inch Pine. Wholesale Price.
4 ft. bottom, 3 ft. stave, 3 hoops	15	$13 35	$10 55
4 ft. bottom, 4 ft. stave, 4 hoops	20	15 95	12 55
4 ft. bottom, 5 ft. stave, 5 hoops	25	18 50	14 65
6 ft. bottom, 5 ft. stave, 5 hoops	30	21 50	17 50
6 ft. bottom, 6 ft. stave, 6 hoops	35	24 50	19 70
7 ft. bottom, 5 ft. stave, 5 hoops	40	26 55	21 10
7 ft. bottom, 6 ft. stave, 6 hoops	50	29 70	23 30
8 ft. bottom, 6 ft. stave, 6 hoops	60	36 55	27 85
8 ft. bottom, 7 ft. stave, 7 hoops	80	40 80	31 90
8 ft. bottom, 8 ft. stave, 8 hoops	90	45 95	36 85
9 ft. bottom, 8 ft. stave, 8 hoops	100	52 75	42 20
10 ft. bottom, 6 ft. stave, 5 hoops	98	51 00	42 50
10 ft. bottom, 8 ft. stave, 7 hoops	136	61 50	52 00
10 ft bottom, 10 ft stave, 8 hoops	171	72 00	62 00
12 ft. bottom, 12 ft. stave, 10 hoops	200	83 00	72 00

SQUARE RESERVOIR TANKS.

	2-inch Pine Wholesale Price.
4 feet long, 4 feet wide and 19 inches deep	$10 80
11 feet long, 4 feet wide and 19 inches deep	13 35
15 feet long, 4 feet wide and 19 inches deep	17 15

These Square Tanks are shipped in bundles, and ready to be put together. Persons desiring larger Tanks than those named above should purchase Round Tanks, which we make as large as desired.

TANK LUGS WITH DRAW BOLTS.



The above cut shows an excellent Tank Lug and Bolt. It holds firmly, draws straight and true and will stand heavy pressure. With this Lug, the setting up of Tanks is a very simple matter.

Below we give price for use with different widths of Hoops.

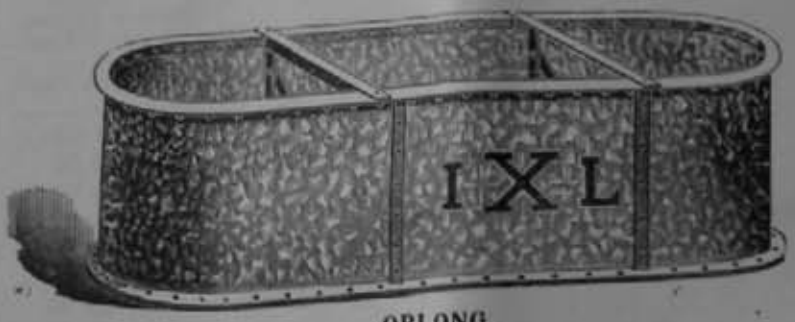
	Wholesale Price.
1¼ and 2 inch	25c
2½ inch	32c
3 inch	38c

"I X L" GALVANIZED STEEL TANKS.

TO CUT HOLE IN TANK FOR ATTACHING PIPE hold the end of a hard wood block firmly against one side and cut from the opposite side with a cold-chisel or gouge.

ROUND.

TO MAKE A WATER-TIGHT JOINT when attaching pipes, use two lock-nuts with leather washers underneath each.



OBLONG.

FIG. 4.

Section of Oblong and Square End Tank, showing internal bracing.

Steel Tanks do not shrink or swell; are not affected by heat or cold; can be used in all places and climates, and **are always ready for use.**

Our "I X L" Tanks are made from **No. 20 Galvanized Steel** with steel frame closely riveted and well soldered.

NOTICE THE CONSTRUCTION OF OUR STEEL TANKS.

The top frame is made from angle steel; the bottom frame is made from flat steel, and **all seams are thoroughly riveted between two pieces of flat steel, and (except on those less than 8 ft. long) each of the Oblong and Square End Tanks has one or more bars across the top with the internal braces as shown in Fig. 4, so there is no possible chance for them to spring sidewise.**

WORCESTER, MASS., October 25, 1899.

The Phelps & Bigelow Wind Mill Co., Kalamazoo, Mich.

GENTLEMEN:—It is now three years since I began selling Galvanized Steel Tanks, and since your firm began the manufacture of these Tanks *I have bought from you the best Steel Tanks I ever used.* The method of construction of your steel Tanks is quite different from some tanks I see. The *riveting of the seams between two pieces of flat steel* makes the seams as strong and solid as the sheet itself. *Your style of bracing* the larger tanks is also worthy of note. Galvanized Steel Tanks have come to stay, I believe.

I have placed these Tanks in houses, barns, public buildings, and in the open air, and so far as I know with *perfect satisfaction in every case.*

These Tanks can be made in so many different shapes that they are particularly adapted for use in houses and barns where it is out of the question to use wood tanks, as there is no swelling or shrinking and consequently no leaking, and always ready for use.

In barns when a large tank capacity is needed, the round wood tank requires too much valuable space, which the average farmer cannot spare, and the "*Oblong*" *Steel Tank* can be placed on the upper plates well back under the roof with the least loss of space.

I believe in Steel Tanks; I recommend them, and they please my customers.

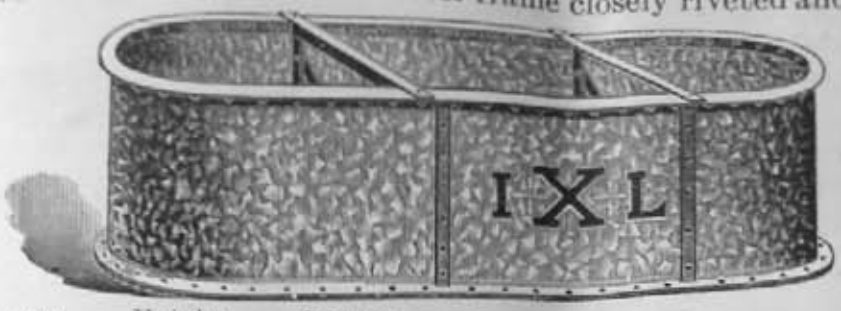
Yours very truly,

C. E. WETHERBEE.

OBLONG TANKS.

Our "I X L" Galvanized Steel Tanks are the BEST STEEL TANKS in the World.

Made from No. 20 Galvanized Steel with steel frame closely riveted and well soldered.



No.	Width.	Height.	Length.	Capacity.	Weight.	Wholesale Price.
101	2 ft.	2 ft.	4 ft.	3¾ bbls.	70 lbs.	$ 4 07
102	2 ft.	2 ft.	5 ft.	4¼ bbls.	86 lbs.	5 67
103	2 ft.	2 ft.	6 ft.	5¼ bbls.	103 lbs.	5 93
104	2 ft.	2 ft.	7 ft.	6½ bbls.	119 lbs.	6 53
105	2 ft.	2 ft.	8 ft.	7½ bbls.	137 lbs.	7 12
106	2 ft.	2 ft.	10 ft.	9½ bbls.	160 lbs.	8 71
107	2 ft.	2½ ft.	8 ft.	9½ bbls.	150 lbs.	8 13
108	2½ ft.	2 ft.	8 ft.	9½ bbls.	144 lbs.	7 54
109	2½ ft.	2 ft.	10 ft.	12 bbls.	180 lbs.	9 76
110	2½ ft.	2½ ft.	8 ft.	12 bbls.	150 lbs.	8 71
111	3 ft.	2 ft.	8 ft.	11¼ bbls.	152 lbs.	8 13
112	3 ft.	2 ft.	10 ft.	14 bbls.	185 lbs.	10 17
113	3 ft.	2½ ft.	8 ft.	14 bbls.	166 lbs.	9 29
114	3 ft.	2½ ft.	10 ft.	18 bbls.	210 lbs.	11 61
115	3 ft.	3 ft.	10 ft.	21 bbls.	235 lbs.	13 72
116	4 ft.	2 ft.	8 ft.	15 bbls.	173 lbs.	10 46
117	4 ft.	2 ft.	10 ft.	19 bbls.	210 lbs.	12 49
118	4 ft.	2 ft.	12 ft.	22 bbls.	255 lbs.	14 94
119	4 ft.	2 ft.	14 ft.	26 bbls.	300 lbs.	17 13
120	4 ft.	2 ft.	16 ft.	30 bbls.	372 lbs.	19 74
121	4 ft.	2½ ft.	8 ft.	17 bbls.	190 lbs.	11 61
122	4 ft.	2½ ft.	10 ft.	24 bbls.	247 lbs.	13 93
123	4 ft.	2½ ft.	16 ft.	38 bbls.	400 lbs.	22 07
124	4 ft.	3 ft.	8 ft.	23 bbls.	215 lbs.	12 77
125	4 ft.	3 ft.	10 ft.	29 bbls.	277 lbs.	16 56
125½	4 ft.	4 ft.	10 ft.	38 bbls.	360 lbs.	20 90
126	4 ft.	5 ft.	10 ft.	47 bbls.	440 lbs.	23 80
127	5 ft.	2 ft.	16 ft.	38 bbls.	412 lbs.	23 22
128	5 ft.	2½ ft.	16 ft.	47 bbls.	435 lbs.	26 12
129	6 ft.	2 ft.	8 ft.	23½ bbls.	240 lbs.	13 36
130	6 ft.	2 ft.	10 ft.	28½ bbls.	285 lbs.	15 97
131	6 ft.	2 ft.	16 ft.	45 bbls.	490 lbs.	26 42
132	6 ft.	2½ ft.	8 ft.	28½ bbls.	255 lbs.	15 10
133	6 ft.	2½ ft.	10 ft.	35½ bbls.	300 lbs.	17 13
133½	6 ft.	2½ ft.	16 ft.	58 bbls.	540 lbs.	30 20
134	6 ft.	3 ft.	10 ft.	42½ bbls.	325 lbs.	18 88
135	6 ft.	4 ft.	10 ft.	56 bbls.	434 lbs.	25 54
136	6 ft.	5 ft.	10 ft.	70 bbls.	540 lbs.	31 36
137	5 ft.	2 ft.	10 ft.	25 bbls.	250 lbs.	14 21
138	5 ft.	3 ft.	10 ft.	37 bbls.	340 lbs.	18 85
139	5 ft.	4 ft.	10 ft.	47 bbls.	400 lbs.	24 36
140	5 ft.	5 ft.	10 ft.	58 bbls.	540 lbs.	30 00

The above sizes are shipped set up ready for use.
Always order by number.

GALVANIZED STEEL TANK COVERS.

Style A.

Fourteen cents per square foot.

Style B.

Thirteen cents per square foot.

Style D.

Thirteen cents per square foot.

Style E.

Fourteen cents per square foot.

To get the number of square feet in a cover for a round tank, square the diameter. Covers for the oblong round end tanks cost same as for the square end tanks.

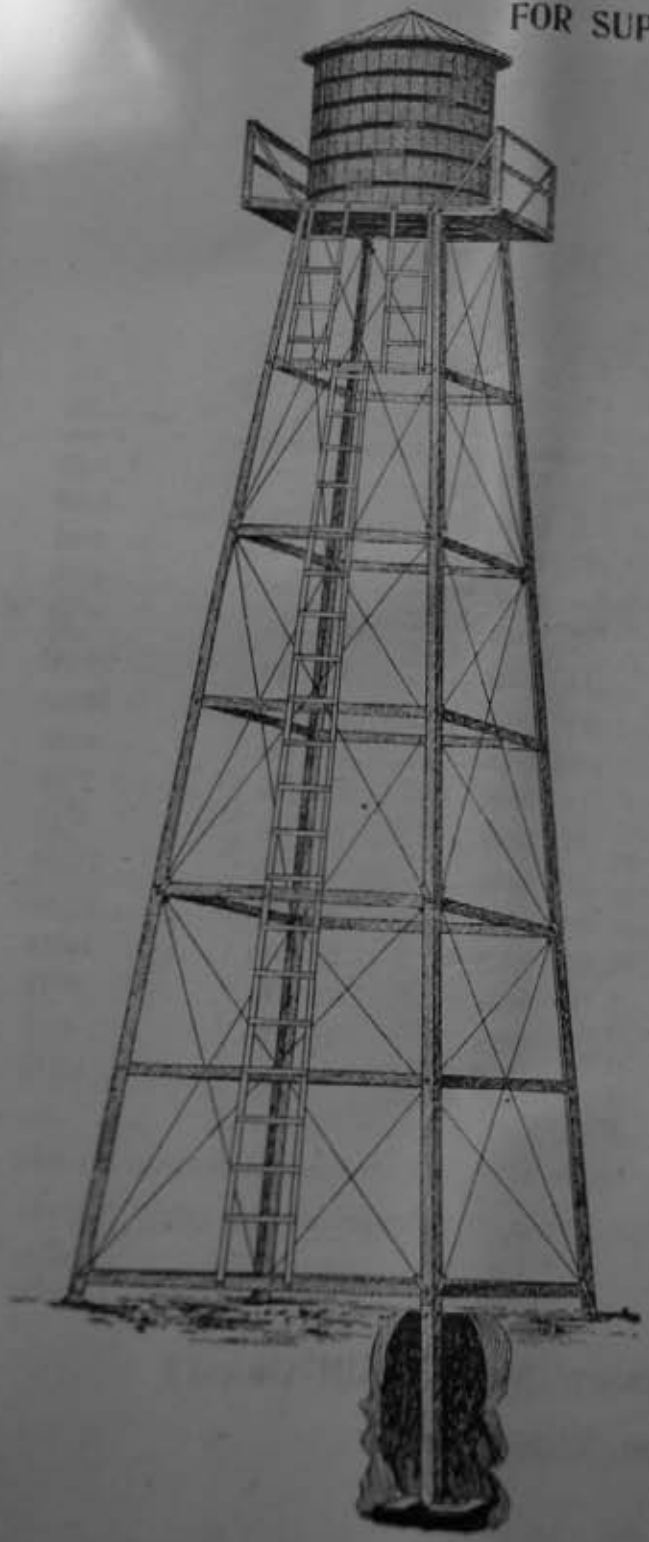
Style F.

Thirteen cents per square foot.

For full description of the goods in this price list, see our general Catalogue.

Galvanized Steel Towers

FOR SUPPORTING TANKS.



A Structure to Last a Lifetime.

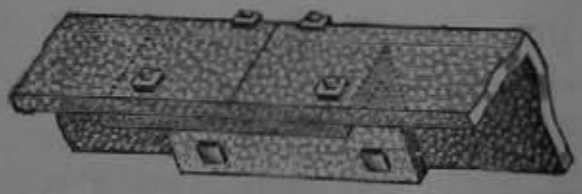
This structure is made ENTIRELY OF STEEL—no wood to become decayed or soaked with storms or drippings from the tank.

Upper Platform of Galvanized Steel.
Tower of Galvanized Steel.
Anchor Posts of Galvanized Steel.

Many Towers for carrying Tanks do not include either the upper platform or anchor posts, it being intended that the purchaser shall make the upper platform of wood and set the Tower on a foundation of masonry, hence we call special attention to the fact that the Towers here quoted are made entirely of Steel, and *the price of same includes the Upper Platform and Anchor Posts.*

CONSTRUCTION.

This style of Tower is very simple and easy to put together and very strong in its construction, as will be seen by reference to the cut. It has a set of *girts every five feet*, all splices of corner posts have extra angle steel plates, and the brace rods are attached to each alternate set of girts at the point of crossing by means of hook bolts which makes the Tower very firm and rigid. In the A and B sizes the upper platform is shipped all put together, and on all sizes the railing is shipped put together ready to attach to upper platform. The ends of the corner posts are butted together and fastened by an extra angle steel splice-plate thoroughly bolted so as to double the thickness at this point, as shown in cut.



SIZES.

We make these Steel Towers in four sizes and designate them by letters instead of figures, so as to distinguish them from our steel windmill towers.

Size A is to carry a Tank not exceeding 5 feet in diameter and 750 gallons capacity.
Size B is to carry a Tank not exceeding 6 feet in diameter and 1100 gallons capacity.
Size C is to carry a Tank not exceeding 7 feet in diameter and 2000 gallons capacity.
Size D is to carry a Tank not exceeding 8 feet in diameter and 3300 gallons capacity.

For sizes, capacity and weight of Tanks designed for use with these Towers, see opposite page. Sizes C and D will also carry an 8 foot Mill with 20 foot Steel Tower attached to timbers in bottom of tank.

The above cut shows our **Galvanized Steel Tower, 30 feet high,** with wood tank thereon.

The Phelps & Bigelow Wind Mill Co.

MANUFACTURERS OF

Windmills and Tanks.

OFFICE AND SALESROOM,
218, 220, 222, 224 N. BURDICK ST.
FACTORY IN REAR.

Kalamazoo, Mich., Jan. 18, 1905.

C. A. Thompson,

White Hall (R.F.D.No.3), Md.

Dear Sir:

Your favor Jan. 16th received, and we enclose herein price list of repairs, off which we give a discount of thirty per cent. You will see that the list price of the sections for an 8 ft. Back Geared Mill is $2.00 each, and after deducting the thirty per cent would make them cost you $1.40 each.

Any other repairs that you may want we can furnish you at a discount of thirty per cent off the list prices.

We take special pains to give prompt shipment to all orders accompanied by the cash.

Respectfully yours,

THE PHELPS & BIGELOW WINDMILL CO.

W J Bigelow Secy

P.S. In our letter in November we sent you our "Wholesale Price List" and wrote you that we would make you a special discount of ten per cent off these wholesale prices, and we trust that this special discount will bring a good number of orders from you during the season. Whenever in need of more printed matter let us know. We enclose another copy of the "Wholesale Price List" herein.